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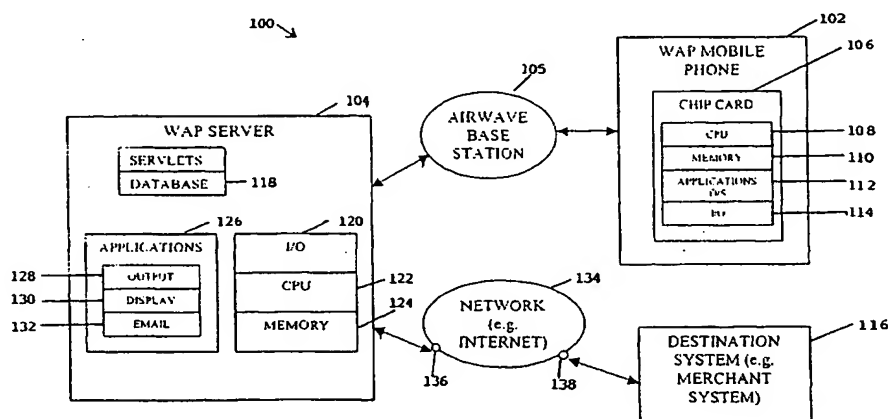
(43) International Publication Date
7 February 2002 (07.02.2002)

PCT

(10) International Publication Number
WO 02/11477 A1

- (51) International Patent Classification⁷: H04Q 7/32, H04L 29/06
- (21) International Application Number: PCT/SG00/00105
- (22) International Filing Date: 27 July 2000 (27.07.2000)
- (25) Filing Language: English
- (26) Publication Language: English
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- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).
- Published:**
— with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: SYSTEM AND METHOD OF ACCESSING AND STORING DATA ON A CHIP CARD OF A MOBILE PHONE



(57) Abstract: A wireless Application Protocol (WAP) communication system and method of accessing and storing of data and information over the Internet includes: a WAP enabled mobile phone being connected to the Internet for performing a transaction between a user who is operating the mobile phone and a destination system. Authentication information is retrieved from the mobile phone by a WAP server. The authentication information includes data pre-stored on a chip card of the mobile phone and a personal identification number (PIN) entered into the mobile phone by the user. The WAP server checks its database against the retrieved pre-stored data and PIN. If the retrieved pre-stored data and PIN are authenticated by the WAP server, the destination system and the user are allowed to perform a transaction over the Internet via the mobile phone and the WAP server, and a confirmation of the transaction is sent to the chip card and stored in the memory of the chip card via the WAP server. If the retrieved pre-stored data and PIN are not authenticated by the WAP server, the destination system and the user are prevented from performing a transaction over the Internet via the mobile phone and the WAP server. The data stored on the chip card over the Internet may be a cash value such that the chip card acts as a cash card.

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SYSTEM AND METHOD OF ACCESSING AND STORING DATA
ON A CHIP CARD OF A MOBILE PHONE

BACKGROUND OF THE INVENTION

5 1. Field of the Invention

This invention relates in general to an application of Internet access via a mobile phone, and more particularly to a system and method of accessing and storing data and information over the Internet on a chip card housed in a mobile phone using Wireless Application Protocol (WAP) technology.

10

 2. Description of Related Art

In a mobile communication system, such as the Global System for Mobile communication (GSM), mobile phones can now be activated via a chip card, such as a Subscriber Identity Module (SIM) chip card adapted for the GSM, or a Number
15 Assignment Module (NAM) chip card adapted for the North American cellular systems, etc. A chip card is generally configured and arranged such that it is removable from a mobile phone or fixedly mounted on the mobile phone.

A chip card, for example, a SIM chip card, has a memory that contains information such as a phone number of the mobile phone, chip version information, a
20 serial number of the chip card, and an operating system (OS) of the chip card, for example, the MPCOS OS from Gemplus, Inc., etc.

Traditionally, the size of a chip card memory is 8K. Due to the need to store more information, such as many phone service applications, e.g. Phone book, Phone utilities, Caller ID, etc., the 8K chip card memory is obsolete. A chip card memory
25 has been expanded to a size of 16K or 32K. In addition to the information contained in the 8K chip memory, the 16K and 32K chip cards have been used to contain information related to phone/network services/functionalities, such as Quick Access, Call Records, Text Messages (SMS), Voice Memo, Sound Settings, Phone Settings,

Clock Settings, Security, and Network Services. These services/functionalities would not only allow the users to access the information stored in a memory of a chip card, but also allow the users to modify the information. Generally, the information, together with the operating system of a chip card, and the applications for performing
5 the phone/network services/functionalities do not occupy the entire area of a 16K or 32K chip card memory.

With the advent of Wireless Application Protocol (WAP) technology, which was founded by the WAP Forum back in the mid 1990s, the development in enabling mobile phones to access the Internet via the WAP technology has been recently
10 explored. While phone manufacturers are providing WAP enabled phones, some companies, such as Nokia, Ericsson, and Phone.com, are making available its version of WAP Gateway server. Such Gateway servers are used as an enabler to facilitate mobile phone access to the Internet, whereby a server translates Internet Web languages in html or XML to a WAP Mobile Language (WML), and vice versa.
15 However, these Gateway servers do not have any functionality that interacts itself with a chip card of a mobile phone including the ability of retrieving information, such as the phone number, or the serial number of a chip card, etc.

Currently, companies are developing applications that can enhance the functionality of a WAP enabled phone for accessing the Internet for many daily human
20 activities, such as stock monitoring and/or trading, weather forecast retrieving, emailing, and simple shopping and purchasing, etc. While the traditional Internet shopping via a Personal Computer (PC) or workstation provides the comfort of a large screen that generally displays many relevant information and data in one page, a typical WAP phone screen is relatively too small to display the same amount of
25 information and data.

In addition, the traditional Internet shopping is very much dependent on a purchaser to provide his/her credit number to a merchant system by keying a long string of card number, e.g. 16 digits, in a transaction. The financial companies, such as Visa International, have since recognized the problem in such a transaction as one
30 does not remember his/her own credit number all the time. As a result, more and more financial companies have signed a contract with mobile phone companies, such as

Gemplus, to further develop a chip card for a mobile phone to enable a credit card number to be stored in the chip card.

However, this development leads to another problem. The existing chip cards, such as the SIM chip cards, have not been designed to contain transaction information or any form of information other than the pre-stored information as discussed above. Typically, when a PC or workstation is used to perform Internet transactions, a means of confirmation is performed by a merchant sending confirmation information to a purchaser who can either print the confirmation of a transaction out or store the confirmation in his/her PC or workstation. The existing WAP mobile phones or chip cards do not provide such a function of printing or storing such confirmation. As a result, a purchaser cannot have a means of addressing disputes if a transaction goes wrong.

Unfortunately, a transaction can go wrong in a number of ways. For example, during a submission of a transaction from a purchaser to a merchant, a communication link is dropped resulting that a merchant system never receives the submission from a WAP enabled phone, thus the transaction is cancelled. At the other end, the purchaser considers that the transaction has gone through as he/she has pressed a button, such as "OK" or "SUBMIT," on his/her phone.

Another example that a transaction can go wrong is that a merchant system has received the submission/confirmation from a purchaser via a WAP enabled phone. However, before the purchaser receives a confirmation back to the merchant, a communication link is dropped resulting that the purchaser thinks that the transaction is not complete and may or may not repeat the transaction. On the other end, the merchant considers that the transaction has gone through.

A further example that a transaction can go wrong is that a transaction is confirmed by both a merchant and a purchaser. However, there was a transmission or communication error resulting in inaccurate price, quantities, etc. In this event, the purchaser may not notice the discrepancy until he/she receives the goods or a credit billing statement. Since no written confirmation is available at the time of the transaction, disputes on a transaction may not be efficiently or readily resolved.

Accordingly, while WAP enabled mobile phones provide an easy means for

consumers to access the Internet, still few people are willing to perform a financial transaction due to the limitation in the WAP technology and the way the chip cards are designed.

5 In addition, under the current WAP technology, security of data transmission is via the Wireless Transport Layer Security (WTLS) specifications, whereby only the transaction of information stored on a chip card, not the authentication of a mobile phone user, is kept secured. The current WAP technology does not have a means of authenticating the mobile phone user as the original genuine owner of the mobile phone and the credit card in a financial transaction on the Internet.

10 Therefore, there is a need for a system and method of accessing and storing data generated from a network, such as the Internet, on a chip card of a WAP enabled mobile phone.

It is with respect to these and other considerations that the present invention has been made.

15

SUMMARY OF THE INVENTION

To overcome the limitations in the prior art described above, and to overcome other limitations that will become apparent upon reading and understanding the present specification, the present invention discloses a system and method of accessing
20 and storing data generated from a network, such as the Internet, on a chip card of a WAP enabled mobile phone.

The present invention solves the above-described problems by capturing and storing transaction data for confirmation of a transaction over the Internet in the unused space of a memory of the chip card housed in the mobile phone. The
25 transaction data is accessed, captured, and stored via an airwave base station, a WAP server, and a network, such as the Internet. Accordingly, the present invention significantly decreases the amount of purchaser's time in ensuring that the transaction is complete and correct. In addition, the present invention allows a purchaser to ensure that the transaction data is correct. Further, the present invention provides a means of
30 immediately confirming the transaction data and a means of preventing fraudulent purchases and non-payment of bill, thereby providing an easy means of resolving

disputes among a purchaser, a merchant, and/or a credit issuing and acquiring company, such as banks, etc. Moreover, the present invention provides an easy means of authenticating a mobile phone user as the original genuine owner of the credit card and the mobile phone. By retrieving the data pre-stored in a chip card, such as the
5 phone number, credit card number, the present invention enables a WAP server to authenticate a phone user by comparing its database against the retrieved data from the mobile phone and a PIN number entered by the phone user. Only when the retrieved data match with the data contained in a WAP server database, a phone user is authenticated as the original genuine owner of the mobile phone and the credit card.

10 Other advantages provided by the present invention may include, but not limited to, as follows:

-- Enabling a user to store cash in a chip-based phone card via a WAP enabled mobile phone. The process of storing cash can be done by linking directly to a banking system via the Internet or via any other suitable networks.

15 -- Enabling a chip card of a mobile phone to act as a cash card by programming a part of the memory of the chip card. The process of storing the cash on the cash card can be done by linking directly to a banking system via the Internet or via any other suitable networks.

-- Enabling an electronic consumer loyalty program to be made available to
20 WAP enabled phone users. Consumers with a WAP enabled mobile phone can use the present invention to store coupons so earned into their WAP enabled phones and use these coupons to redeem goods over the Internet via their WAP enabled phones from participating merchants.

-- Linking to any Internet based loyalty program to select and retrieve coupons
25 and store the coupons in the consumers' WAP enabled mobile phones.

When a chip card of a mobile phone or a pre-paid phone card with a chip acts as a cash card, the chip card can be programmed with a toolkit, such as Java toolkits, as available from manufacturers, such as Gemplus. In a process of topping up a cash value, several methods may be used. One of the methods is applicable in countries
30 where an EFT (Electronic Funds Transfer) system via the Internet is available. In such method, topping up the cash value can be done by using the WAP technology to link

the chip card via the Internet based on the EFT system to various banking systems. The WAP server may include a payment module to capture the information of a customer or user such as a bank name, account number, access time to a bank system, an amount of cash topped up to a chip card. The authentication process is similar to
5 those described above.

One of the other methods to top up the cash value is applicable in countries where an EFT system via the Internet is not available. In such method, the WAP server provides linkage via the Internet to various banking systems who wish to participate in this service. A customer or user then accesses directly to the banking
10 systems to top up the cash value. Similarly, the authentication process is similar to those described above.

The present invention also includes other features and/or advantages. One of the features is that personalized messages may be recorded with a transaction record. This feature allows one to keep a personalized message for transactions. If the user is
15 a vendor, the present invention would allow the vendor to record the transactions for other purposes, such as marketing, etc.

Another feature of the present invention is that transaction confirmation data captured by the WAP server may be converted to email and sent to a user's email system for record keeping purposes and/or to a sales agent for confirmation. Such
20 transaction confirmation data may include stock share transaction data, such as a transaction number, confirmation code, share name, quantity, transacted price, date and name of a trading house, or credit card purchase information, such as a merchant name, approval code, total cost, merchant ID, date and time of transaction, batch number, transaction type, reference number, trace number, or in the case of gaming,
25 the date and time of the transaction, gaming type, numbers selected, individual and total price, race number/date or draw number/date, transaction code, or approval code, etc.

The system for accessing and storing of data and information over a network is a Wireless Application Protocol (WAP) communication system. In one embodiment,
30 the WAP communication system includes: a mobile phone having a chip card capable of activating the mobile phone, the chip card including a Central Processing Unit

(CPU), a plurality of applications, and a memory which includes pre-stored data; a WAP server, the WAP server being communicable with the chip card and retrieving the pre-stored data from the memory; a first network access port for accessing the network, the WAP server being coupled to the first network access port; a second network access port for accessing the network; and a destination system being coupled to the second network access port, the WAP server being communicable with the chip card and the destination system and sending data generated from a transaction over the network between the mobile phone and the destination system to the chip card, and the data generated from the transaction being stored on the memory of the chip card.

10 One aspect of the present invention is that the WAP server is communicable with the mobile phone via an airwave base station.

Another aspect of the present invention is that the network is Internet, and the first and second network access ports are Internet access nodes.

15 A further aspect of the present invention is that the data generated from the transaction over the network includes confirmation information of a request made by the mobile phone to the destination system, wherein the request made by the mobile phone is sent to the WAP server via an airwave base station, and the confirmation information generated between the mobile phone and the destination system is sent to the WAP server via the network.

20 An additional aspect of the present invention is that the mobile phone includes a display for displaying the stored data generated from the transaction. The stored data generated from the transaction can be downloaded onto a second destination system. The downloaded data can be displayed by the second destination system.

25 A further additional aspect of the present invention is that the data generated from the transaction is stored in a memory of the WAP server. The WAP server may instruct the mobile phone to record/write the transacted data into the memory of the chip card, to update a transaction pertaining to the transacted data, to send such information to a user's email system, and/or to a second network system for confirmation.

30 Also, the present invention provides a method of accessing and storing of data and information over a network. In one embodiment, the method includes: activating

a mobile phone by a chip card housed in the mobile phone, the chip card providing a CPU and a memory which stores pre-stored data; retrieving the pre-stored data from the memory of the chip card by a WAP server, the WAP server being communicable with the chip card; accessing the network via a first network access port by the WAP
5 server; accessing the network via a second network access port by a destination system; sending data generated from a transaction over the network between the mobile phone and the destination system to the chip card; and storing the data generated from the transaction on the memory.

Still in one embodiment of the present invention, the data generated from the
10 transaction over the network is further sent to a second destination system. In an alternative embodiment, the data generated from the transaction over the network is directly sent to a second destination system specified by the chip card or the WAP server.

Another aspect of the present invention is that the method further includes
15 authenticating a user who is operating the mobile phone as an original owner of the mobile phone. The authentication process includes entering a personal identification number (PIN) by the user; and checking a database of the WAP server against the retrieved pre-stored data and the PIN. If the retrieved pre-stored data and the PIN are authenticated by a WAP server's authenticating system or another tool in the WAP
20 server, access to the network for a transaction between the user and the destination system via the mobile phone and the WAP server is allowed. If the retrieved pre-stored data and the PIN are not authenticated by the WAP server, access to the network for a transaction between the user and the destination system via the mobile phone and the WAP server is denied.

25 Further, the present invention provides a method of accessing and storing of data and information over the Internet, which includes the steps of: connecting a mobile phone to the Internet for performing a transaction between a user who is operating the mobile phone and a destination system; requesting authentication information from the mobile phone by a WAP server via an airwave base station;
30 retrieving the authentication information from the mobile phone, the authentication information including data pre-stored on a chip card of the mobile phone and a

personal identification number (PIN) entered into the mobile phone by the user; and checking a database of the WAP server against the retrieved data and PIN. If the retrieved data and PIN are authenticated by the WAP server, the destination system and the user are allowed to perform a transaction over the Internet via the mobile
5 phone and WAP server, and a confirmation of the transaction being sent to the chip card and stored in the memory of the chip card via the WAP server. If the retrieved data and PIN are not authenticated by the WAP server, the destination system and the user are prevented from performing a transaction over the Internet via the mobile phone and WAP server.

10 These and various other advantages and features of novelty which characterize the invention are pointed out with particularity in the claims annexed hereto and form a part hereof. However, for a better understanding of the invention, its advantages, and the objects obtained by its use, reference should be made to the drawings which form a further part hereof, and to accompanying descriptive matter, in which there are
15 illustrated and described specific examples of an apparatus in accordance with the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Referring now to the drawings in which like reference numbers represent
20 corresponding parts throughout:

FIG. 1 illustrates a block diagram showing one embodiment of a Wireless Application Protocol (WAP) communication system in accordance with the principles of the present invention.

FIG. 2 illustrates a flow chart diagram of an operation of accessing and storing
25 data and information over the Internet on a chip card housed in a mobile phone of a WAP communication system in accordance with the principles of the present invention.

FIG. 3 illustrates a flow chart diagram of an alternative operation of accessing
and storing data and information over the Internet on a chip card housed in a mobile
30 phone of a WAP communication system in accordance with the principles of the present invention.

DETAILED DESCRIPTION

In the following description of the exemplary embodiment, reference is made to the accompanying drawings which form a part hereof, and in which is shown by way of illustration the specific embodiment in which the invention may be practiced.

5 It is to be understood that other embodiments may be utilized as structural changes may be made without departing from the scope of the present invention.

The present invention discloses a Wireless Application Protocol (WAP) communication system and a method of accessing and storing data and information over the Internet on a chip card housed in a WAP enabled mobile phone.

10 The present invention solves the above-described problems by accessing, capturing, and storing transaction data for confirmation of a transaction over the Internet in a memory of the chip card. The transaction data is accessed, captured, and stored via an airwave base station, a WAP server, and a network, such as the Internet. Accordingly, the present invention significantly decreases the amount of purchaser's
15 time in ensuring that the transaction is complete and correct. In addition, the present invention allows a purchaser to ensure that the transaction data is correct. Further, the present invention provides a means of immediately confirming the transaction data and a means of preventing fraudulent purchases and non-payment of bill, thereby providing an easy means of resolving disputes among a purchaser, a merchant, and/or a credit
20 issuing and acquiring company, such as banks, etc. Moreover, the present invention provides an easy means of authenticating a mobile phone user as the original genuine owner of the credit card and the mobile phone. By retrieving the data pre-stored in a chip card, such as the phone number, credit card number, the present invention enables a WAP server to authenticate a phone user by comparing its database against the
25 retrieved data from the mobile phone and a PIN number entered by the phone user. Only when the retrieved data match with the data contained in a WAP server database, a phone user is authenticated as the original genuine owner of the mobile phone and the credit card.

In FIG. 1, a WAP communication system 100 in accordance with the principles
30 of the present invention is shown. A WAP enabled mobile phone 102 is serviced by a WAP server 104 (or referred to as a WAP Gateway server) via an airwave base station

105. The WAP enabled mobile phone 102 is activated by a chip card 106 housed in the WAP phone 102. The chip card 106, such as a Subscriber Identity Module (SIM) chip card used in GSM, may be removeably mounted within the housing of the WAP phone 102. It is appreciated that a chip card can also be fixedly mounted in the WAP
5 phone 102 within the scope of the present invention.

The chip card 106 includes a CPU 108, a memory 110 preferably having a size of at least 16K or 32K, a plurality of applications 112, such as a chip operation system (O/S), and an input/output (I/O) interface 114. The memory 110 includes pre-stored data and information, such as the phone number of the WAP phone 102, a user's credit
10 card number, a serial number of the chip card 106, etc. In addition, other pertinent information relating to service/functionalities, such as Phone book, Quick Access, Call Records, Text Messages (SMS), Voice Memo, Sound Settings, Phone Settings, Clock Settings, Security, and Network Services, etc., can be pre-stored in the memory 110. These are the functionalities that allow the users to access to and modify the data and
15 information that are pre-stored in a pre-set location in a chip card and/or in another phone memory chip (not shown).

The memory 110 also includes a memory area for storing transaction information, such as confirmation information of a transaction between a destination system or a merchant system 116 and a user who purchases goods/services by using
20 the WAP phone 102 via the WAP communication system 100.

In FIG. 1, the WAP server 104 includes a database 118. The database 118 includes data and information of each of the WAP enabled mobile phones communicable to the WAP server 104 in the system 100. Upon receiving a service request from the WAP phone 102 via the airwave base station 105, the WAP server
25 104 retrieves the pre-stored data, such as the serial number of the chip card 106, the phone number, and the credit number, from the memory 110 of the WAP phone 102 that sent the service request. The WAP server 104 also requests a PIN to be entered by the user and retrieves the PIN entered by the user from the WAP phone 102. By checking the database 118 against the retrieved data and the PIN, the WAP server 104
30 either authenticates the identity of the user thereby allowing the communication between the WAP phone 102 and a network 134, or rejects the identity of the user

thereby denying the communication between the mobile phone 102 and the network 134. Accordingly, the WAP server 104 would reject or allow the user to perform a transaction with the merchant system 116 on the network 134, such as the Internet, via the WAP phone 102 and the WAP server 104. The WAP server 104 may also
5 negotiate with the merchant system 116 in committing a transaction before storing the confirmation of the transaction into the memory 110 of the chip card 106.

As shown in FIG. 1, the WAP server 104 includes an input/output (I/O) interface 120, a CPU 122, and a memory 124. Also, the WAP server 104 includes a plurality of applications 126, such as downloading (OUTPUT 128) the transaction
10 information, displaying (DISPLAY 130) the transaction information, and emailing (EMAIL 132) transaction information. It will be appreciated to a person skilled in the art that other types of applications or services can be provided by the WAP server 104 without departing from the scope of the present invention. It will also be appreciated to a person skilled in the art that the transaction information can be displayed,
15 downloaded, or sent out to another destination system, such as a sales agent, as a confirmation of a purchase.

Further in FIG. 1, the WAP server 104 accesses the network 134 at a first network access node 136. The merchant system 116 accesses the network 134 at a second network access node 138. The network, such as the Internet, and the uploading
20 and downloading data and information to and from the network 134 are well known in the art and will not be described in detail herewith.

Although one system configuration is illustrated in FIG. 1, those skilled in the art will recognize that any number of different configurations performing similar functions may be used in accordance with the present invention.

25 It is noted that an operation of accessing and storing data and information over the Internet on a chip card housed in a mobile phone of a WAP communication system may or may not include an authentication process. It may be an option for an owner of a mobile phone to select whether s/he needs to include an authentication process.

FIG. 2 illustrates an operational flow 140 without an authentication process.
30 The operational flow 140 starts with an operation 142 of activating the WAP enabled mobile phone. Then, in an operation 144, a WAP server retrieves pre-stored data from

a memory of the chip card of the mobile phone. The WAP server accesses the network in an operation 146, and a merchant system accesses the network in an operation 148. Then, a user and the merchant system perform a transaction via the mobile phone and the WAP server. In an operation 150, confirmation information and/or other data generated from the transaction over the network between the mobile phone and the merchant system is sent to the chip card of the mobile phone. The received confirmation information at the mobile phone is then stored into the memory of the chip card in an operation 152. The operational flow 140 may then be terminated. It is noted that the sequence of the above operations in the operational flow 140 is not necessarily performed in the order as illustrated. It is appreciated to a person skilled in the art that the sequence of the above operations can be changed within the scope of the present invention. For example, the operation 148 of the merchant system accessing the network can be prior to the operation 142 of activating the mobile phone. It is also appreciated that other operations may be performed. For example, the user may simply surf the network.

FIG. 3 illustrates an operational flow 154 with an authentication process. The operational flow 154 starts with an operation 156 of connecting the mobile phone to the network, such as the Internet. Then, in an operation 158, a WAP server requests authentication information from the mobile phone. Next, the authentication information is retrieved from the mobile phone in an operation 160. The authentication information includes pre-stored data from a memory of a chip card of the mobile phone and a PIN entered into the mobile phone by the user. The WAP server then checks its database against the retrieved data and the PIN in an operation 162. If the WAP server authenticates the user, the WAP server would allow the user to perform a transaction over the Internet via the mobile phone in an operation 164, and the confirmation of the transaction is then sent to the chip card and stored into the memory of the chip card in an operation 166. If the WAP server does not authenticate the user, the WAP server would deny the user to perform a transaction over the Internet via the mobile phone in an operation 168. Then, the operational flow 154 may be terminated. Again, it is noted that the sequence of the above operations in the operational flow 154 is not necessarily performed in the order as illustrated. It is

appreciated that other operations can be performed. For example, the user may simply surf the Internet. It is noted that the WAP server may or may not request authentication information for the user to simply surf the Internet.

It is appreciated that the operation of accessing and storing data and
5 information over the network can be performed via a computer program storage
medium readable by a computer system. The computer program storage medium may
encode a computer program of instructions for executing the above described process
for accessing and storing data and information over a network. It is also appreciated
that the operation of accessing and storing data and information over the network can
10 be performed via a computer data signal embodied in a carrier wave readable by a
computing system. The computer data signal may encode a computer program of
instructions for executing the above described process for accessing and storing data
and information over a network.

The foregoing description of the exemplary embodiment of the invention has
15 been presented for the purposes of illustration and description. It is not intended to be
exhaustive or to limit the invention to the precise form disclosed. Many modifications
and variations are possible in light of the above teaching.

CLAIMS

What is claimed is:

1. A Wireless Application Protocol (WAP) communication system for accessing
5 and storing of data and information over a network, comprising:
a mobile phone having a chip card capable of activating the mobile phone, the
chip card including a Central Processing Unit (CPU) and a memory which stores pre-
stored data;
a WAP server, the WAP server being communicable with the chip card and
10 retrieving the pre-stored data from the memory;
a first network access port for accessing the network, the WAP server being
coupled to the first network access port;
a second network access port for accessing the network; and
a destination system being coupled to the second network access port, the
15 WAP server being communicable with the chip card and the destination system and
sending data generated from a transaction over the network between the mobile phone
and the destination system to the chip card and stored on the memory of the chip card.
2. The system of claim 1, wherein the chip card is removable from the mobile
20 phone.
3. The system of claim 1 or 2, wherein the WAP server is communicable with the
mobile phone via an airwave base station, the network is the Internet, and the first and
second network access ports are Internet access nodes.
- 25 4. The system of claim 1 or 2, wherein the data generated from the transaction
over the network includes confirmation information of a request made by the mobile
phone to the destination system, wherein the request made by the mobile phone is sent
to the WAP server via an airwave base station, and the confirmation information
30 generated between the mobile phone and the destination system is sent to the WAP
server via the network.

5. The system of claim 1 or 2, wherein the data generated from the transaction over the network includes information presented by the destination system, the information is sent to the chip card and stored in the memory of the chip card.
- 5 6. The system of claim 1 or 2, wherein the mobile phone further includes a display for displaying the data generated from the transaction.
7. The system of claim 1 or 2, further comprising a second destination system,
10 wherein the data generated from the transaction is downloaded onto the second destination system.
8. The system of claim 7, wherein the second destination system includes a display for displaying the data generated from the transaction.
- 15 9. The system of claim 1 or 2, wherein the WAP server includes a memory, the data generated from the transaction is stored in the memory of the WAP server.
10. The system of claim 9, wherein the WAP server includes means for instructing
20 the mobile phone to record/write the transacted data into the memory of the chip card, to update a transaction pertaining to the transacted data, to send the data generated from the transaction to an email system.
11. A method of accessing and storing of data and information over a network,
25 comprising the steps of:
- a) activating a mobile phone by a chip card housed in the mobile phone, the chip card providing a CPU and a memory which stores pre-stored data;
 - b) retrieving the pre-stored data from the memory of the chip card by a WAP server, the WAP server being communicable with the chip card;
 - 30 c) accessing the network via a first network access port by the WAP server;

d) accessing the network via a second network access port by a destination system;

e) sending data generated from a transaction over the network between the mobile phone and the destination system to the chip card; and

5 f) storing the data generated from the transaction on the memory.

12. The method of claim 11, further comprising the step of: g) authenticating a user who is operating the mobile phone as an original owner of the mobile phone.

10 13. The method of claim 12, the authenticating step g) comprising:

i) entering a personal identification number (PIN) by the user; and

j) checking a database of the WAP server against the retrieved data and

PIN:

15 if the retrieved data and PIN are authenticated by the WAP server, continuing step c);

if the retrieved data and PIN are not authenticated by the WAP server, terminating steps c)-f) and continuing step g).

14. The method of claim 11, further comprising the step of: h) sending the data
20 generated from the transaction over the network to a second destination system.

15. The method of claim 11, wherein the WAP server is communicable with the mobile phone via an airwave base station.

25 16. The method of claim 11, wherein the network is the Internet, and the first and second network access ports are Internet access nodes.

17. A method of accessing and storing of data and information over a network, comprising:

30 activating a mobile phone by a chip card housed in the mobile phone, the chip card providing a CPU and a memory which stores pre-stored data;

retrieving the pre-stored data from the memory by a WAP server, the WAP server being communicable with the chip card;

accessing the network via a first network access port by the WAP server;

accessing the network via a second network access port by a destination
5 system; and

sending data generated from a transaction over the network between the mobile phone and the destination system to a second destination system.

18. A method of accessing and storing of data and information over the Internet,
10 comprising:

connecting a mobile phone to the Internet for performing a transaction between a user who is operating the mobile phone and a destination system;

requesting authentication information from the mobile phone by a WAP server via an airwave base station;

15 retrieving the authentication information from the mobile phone, the authentication information including data pre-stored on a chip card of the mobile phone and a personal identification number (PIN) entered into the mobile phone by the user; and

checking a database of the WAP server against the retrieved data and PIN:

20 if the retrieved data and PIN are authenticated by the WAP server, the destination system and the user being allowed to perform a transaction over the Internet via the mobile phone and WAP server, and a confirmation of the transaction being sent to the chip card and stored in the memory of the chip card via the WAP server; and

25 if the retrieved data and PIN are not authenticated by the WAP server, the destination system and the user being prevented from performing a transaction over the Internet via the mobile phone and WAP server.

19. A computer program storage medium readable by a computing system and
30 encoding a computer program of instructions for executing a computer process for

accessing and storing of data and information over a network, the computer process comprising:

connecting a mobile phone to the Internet for performing a transaction between a user who is operating the mobile phone and a destination system;

5 requesting authentication information from the mobile phone by a WAP server via an airwave base station;

retrieving the authentication information from the mobile phone, the authentication information including data pre-stored on a chip card of the mobile phone and a personal identification number (PIN) entered into the mobile phone by the
10 user; and

checking a database of the WAP server against the retrieved data and PIN:

if the retrieved data and PIN are authenticated by the WAP server, the destination system and the user being allowed to perform a transaction over the Internet via the mobile phone and WAP server, and a confirmation of the
15 transaction being sent to the chip card and stored in the memory of the chip card via the WAP server; and

if the retrieved data and PIN are not authenticated by the WAP server, the destination system and the user being prevented from performing a transaction over the Internet via the mobile phone and WAP server.

20

20. A computer data signal embodied in a carrier wave readable by a computing system and encoding a computer program of instructions for executing a computer process for accessing and storing of data and information over a network, the computer process comprising:

25 connecting a mobile phone to the Internet for performing a transaction between a user who is operating the mobile phone and a destination system;

requesting authentication information from the mobile phone by a WAP server via an airwave base station;

retrieving the authentication information from the mobile phone, the
30 authentication information including data pre-stored on a chip card of the mobile phone and a personal identification number (PIN) entered into the mobile phone by the

user; and

checking a database of the WAP server against the retrieved data and PIN:

if the retrieved data and PIN are authenticated by the WAP server, the destination system and the user being allowed to perform a transaction over the Internet via the mobile phone and WAP server, and a confirmation of the transaction being sent to the chip card and stored in the memory of the chip card via the WAP server; and

if the retrieved data and PIN are not authenticated by the WAP server, the destination system and the user being prevented from performing a transaction over the Internet via the mobile phone and WAP server.

21. The system of claim 1 or 2, wherein the data stored on the chip card over the network is a cash value.

22. A method for accessing and storing a cash value from and on a chip card housed in the mobile phone over a network, comprising:

activating the mobile phone by the chip card which provides a CPU and a memory storing pre-stored data;

retrieving the pre-stored data from the memory of the chip card by a WAP server;

linking the WAP server to various banking systems;

sending the cash value over the network to the chip card; and

storing the cash value on the memory of the chip card.

22. The method of claim 21, further comprising authenticating a user who is operating the mobile phone as an original owner of the mobile phone.

23. The method of claim 22, wherein the authenticating of the user comprises:

entering a personal identification number (PIN) by the user; and

checking a payment module of the WAP server against the retrieved pre-data and the PIN.

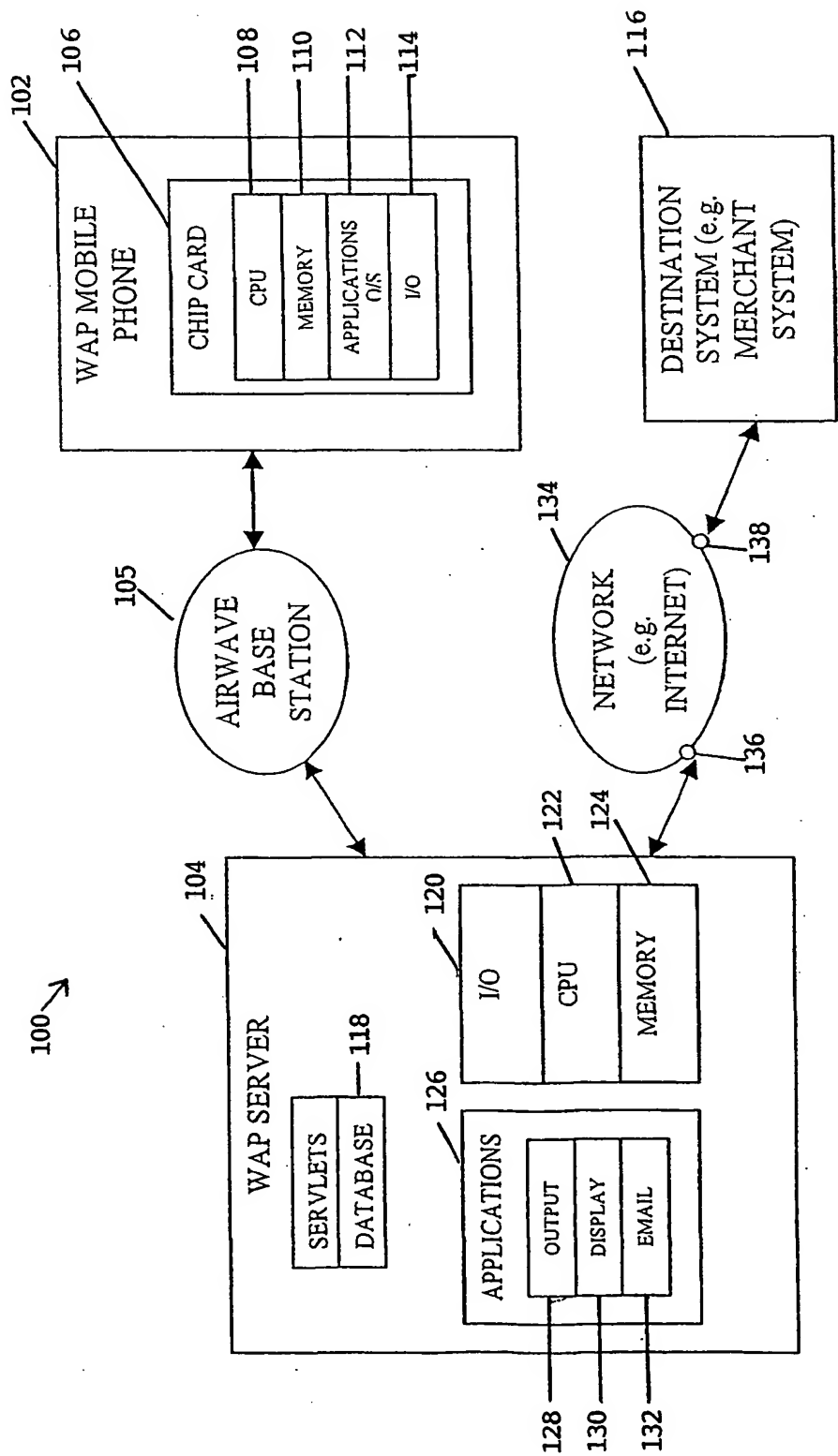


FIG.1

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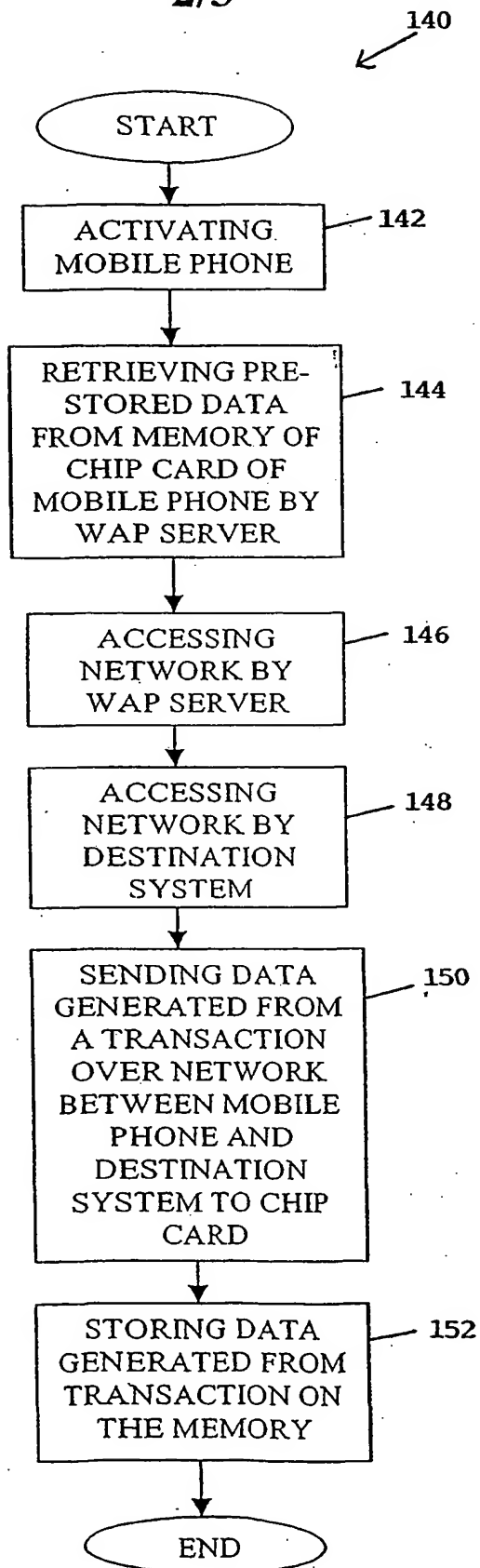


FIG. 2

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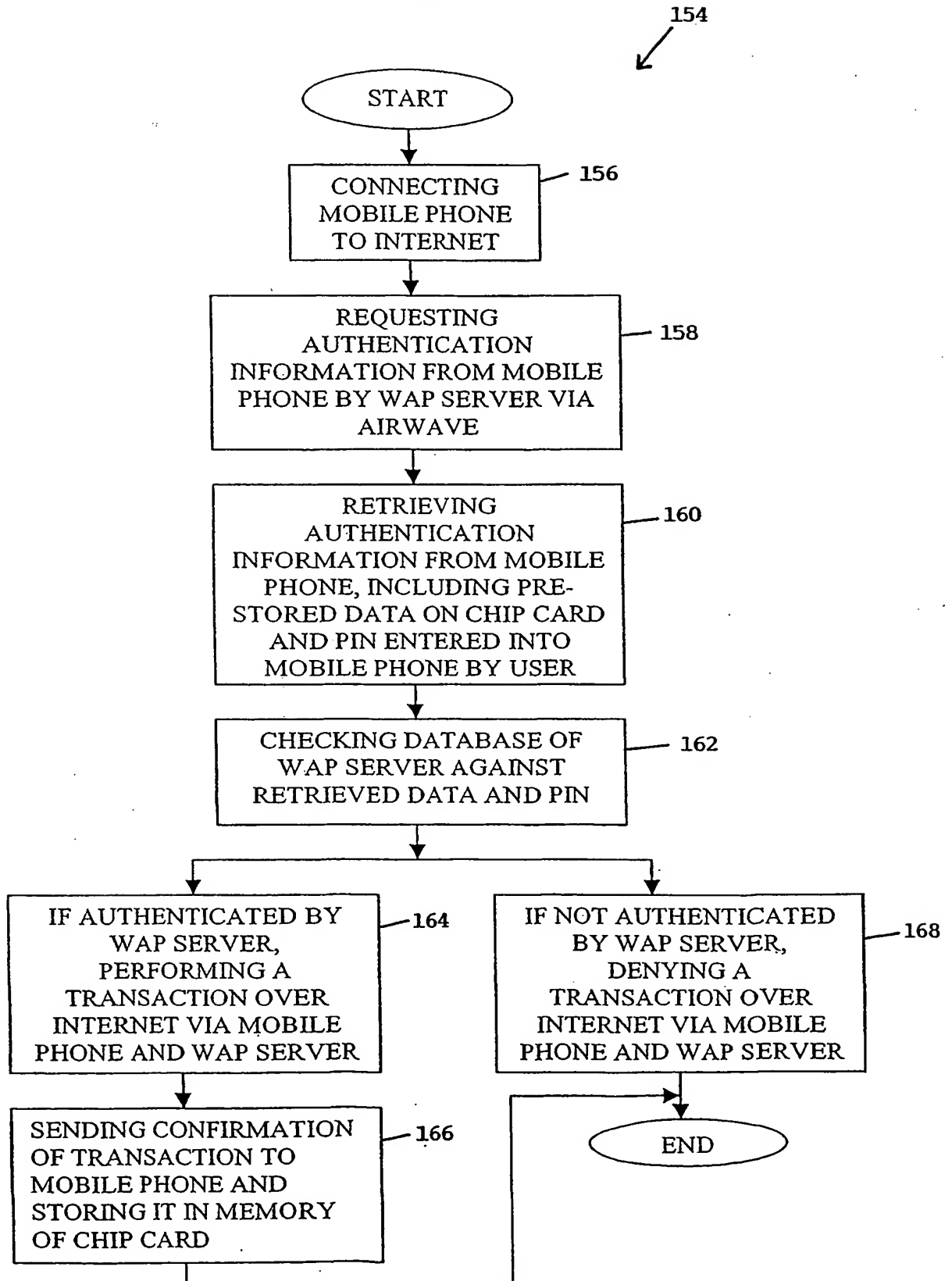


FIG. 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SG00/00105

A. CLASSIFICATION OF SUBJECT MATTER																						
Int. Cl. ⁷ : H04Q 7/32; H04L 29/06																						
According to International Patent Classification (IPC) or to both national classification and IPC																						
B. FIELDS SEARCHED																						
Minimum documentation searched (classification system followed by classification symbols) IPC: GLOBAL																						
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched INTERNET																						
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT: WAP or wireless application protocol and mobile or cell or handy and server or network and chip or card or SIM or NAM; INSPEC: WAP or wireless application protocol and chip or card or SIM or NAM																						
C. DOCUMENTS CONSIDERED TO BE RELEVANT																						
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																				
X	WO 00/18161 (NOKIA MOBILE PHONES LTD. et al) 30 March 2000 whole document	1-23																				
Y	AU 48816/99 (ALCATEL) 23 March 2000 whole document	1-23																				
Y	WO 00/03363 (GEMPLUS S.C.A.) 20 January 2000 whole document	1-23																				
<input type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex																						
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A"</td> <td>document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T"</td> <td>later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E"</td> <td>earlier application or patent but published on or after the international filing date</td> <td>"X"</td> <td>document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L"</td> <td>document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y"</td> <td>document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O"</td> <td>document referring to an oral disclosure, use, exhibition or other means</td> <td>"&"</td> <td>document member of the same patent family</td> </tr> <tr> <td>"P"</td> <td>document published prior to the international filing date but later than the priority date claimed</td> <td></td> <td></td> </tr> </table>			"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family	"P"	document published prior to the international filing date but later than the priority date claimed		
"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention																			
"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone																			
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art																			
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family																			
"P"	document published prior to the international filing date but later than the priority date claimed																					
Date of the actual completion of the international search 4 October 2000		Date of mailing of the international search report 11 OCT 2000																				
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929		Authorized officer JAMES WILLIAMS Telephone No : (02) 6283 2599																				

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/SG00/00105

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member	
WO	00/18161	AU	58649/99	FI	982031
WO	00/03363	AU	42715/99	FR	2781067
AU	48816/99	EP	989529	JP	12-165472
END OF ANNEX					